MISR Goals for INTEX-B/MILAGRO

Ralph Kahn, Jet Propulsion Lab / Caltech

We have two major goals for this campaign:

1. To validate MISR aerosol retrievals of urban and industrial pollution Particle Optical Depth and Microphysical Properties (size, SSA, shape) over land and water. This will be our first opportunity to perform detailed validation for this important aerosol type. To achieve this goal, we aim to obtain "Environmental Snapshots" during at least two MISR overflights, if possible. During INTEX-A we had two Golden Days, for which our aggregate of experimenters characterized total column spectral AOT, extinction and scattering profiles, layer-by-layer aerosol microphysical properties (size, SSA, shape) from in situ measurements, and surface reflectivity or BRDF. During ACE-Asia, we had five such events. If successful at INTEX-B, it will lead to quantitative error bars on our aerosol products for urban and industrial pollution cases, and could lead to refinements of the MISR retrieval algorithm itself. As you know, this is a highly collaborative scientific activity.

2. To contribute, to the overall Campaign, regional maps of AOT, particle properties, and where possible, cloud and aerosol plume heights, about 400 km wide, for MISR overflight events. These can be used to assess the relationships among sub-orbital measurements taken on different platforms, to put aerosol gradients and trends into regional context, to study, with the help of more detailed sub-orbital measurements, the evolution of of particle properties from the source region downwind, and to initialize or validate aerosol transport models. The range of mission-targeted products we provide (e.g., region-specific maps, time-series from previous years), the associated analysis we can perform during the campaign (e.g., Research Aerosol Retrieval runs to provide more detailed analysis, specialized plume height products) and the speed with which these products can be made available (ranging from 24 to 48 hours, on average, based on past experience), will depend upon available resources.

Our focus will be on the first part of INTEX-B, and I will probably be in Veracruz for much or all of my field deployment, but we will also contribute what we can to the Anchorage and Hawaii components of the campaign, as resources allow. I'm hoping to bring my new post-doc, Yang Liu, provided he receives his Green Card in time.